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ABSTRACT

Although health is a key element in one's experience of middle adulthood as a time of productivity and personal fulfillment, research on psychosocial factors predictive of mid-life health is sparse, especially for women. Psychosocial variables are not only highly salient to health, but also are potentially modifiable by women themselves. This study employed a multivariate, multitheoretical approach to the study of health, examining a variety of psychosocial predictors (locus of control/mastery, psychological well-being, role quality, social network ties, optimism, and demographic variables) in a secondary analysis of data collected by Baruch and Barnett on 238 women. Subjects were divided into four groups: never married (N=50), married without children (N=54), married with children (N=88), and divorced with children (N=46) and were interviewed in their homes (Brookline, Massachusetts), 1978-79. It was found that 27% of the variance in self-reported health of mothers (whether married or divorced) was accounted for by stress, optimism, employment outside the home, occupational prestige, and quality of experience in the maternal role. Twenty-two percent of the variance in health of married women was explained by stress, quality of experience in the wife role, employment, and occupational prestige. A comparison of the healthiest and the least healthy women revealed that women in better health in middle adulthood had fewer concerns regarding their work, marital roles, and child-rearing roles as compared to their less healthy counterparts. Contains approximately 120 references. (NB)

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Psychosocial Predictors of Women's Physical Health in Middle Adulthood

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Psychosocial Predictors of Health in Women

in Middle Adulthood

Employing a multivariate multitheoretical approach, psychosocial predictors of health were examined in a secondary analysis of data collected by Baruch and Barnett on 238 women. Mean age was 43.6 years; 60% were college educated; 76% were employed outside the home. 27% of the variance in self-reported health of mothers (whether married or divorced) was accounted for by stress (β=-.29), optimism (β=.17), employment outside the home (β=.14), occupational prestige (β=.18), and quality of experience in the maternal role (β=.14). 22% of the variance in health of wives was explained by stress (β=-.36), quality of experience in the wife role (β=.12), employment (β=.15) and occupational prestige (β=.14). Using t tests, healthiest and least healthy women were compared. Women in better health in middle adulthood had fewer concerns regarding their work (t=-2.03, p=.04), marital (t=-4.57, p=.0001) and child-rearing (t=-3.89, p=.0002) roles, as compared to their less healthy counterparts. Implications of the study were discussed.

Psychosocial Predictors of Women's Physical Health in Middle Adulthood

Health is undeniably a key element in one's experience of middle adulthood as a time of productivity and personal fulfillment, yet research on psychosocial factors predictive of mid-life health is sparse. The literature is notably deficient in studies of women's health during this period, except for narrowly focused investigations of the experience of menopause and its discomforts. Psychosocial variables are not only highly salient to health, but also potentially modifiable by women themselves--if they receive accurate information and/or counseling from their health care providers.

Employing a multivariate, multitheoretical approach to the study of health, this study examined a variety of psychosocial predictors in a secondary analysis of data collected by Baruch and Barnett (1986) on 238 women. The study builds on previous investigations of mid-life health by the author, including a longitudinal study which began at the 1982 World's Fair (Thomas, 1983). Although there is little consensus on the age parameters of middle adulthood, Baruch and Barnett, as well as Thomas, used ages 35 to 55 to define the period in their studies. Among the predictors of women's health that Thomas (1990) examined previously were locus of control, optimism, stress, and social network ties. The Baruch and Barnett data set included all of these variables and offered the opportunity to examine two additional variables (psychological well-being and quality of experience in social roles) hypothesized to impact women's health. One of the chief contributions of Baruch and Barnett's work

was their emphasis on investigating women's subjective experience in their primary roles, in contrast to other projects in which occupancy of roles per se was the focus. For example, their measurement tool made it possible to evaluate whether the rewards of being a mother outweighed a woman's concerns about her parenting competence and her worries and disappointments about her children's behavior. Insufficient attention has been given to the health consequences of women's experience in the roles they enact daily. Individuals internalize the roles they play and the statuses they occupy in the groups with which they are identified (Meltzer, Petras, & Reynolds, 1975). Therefore, benefits and costs of a woman's role commitments may be critically important to their health.

Women's Health: The Knowledge Gap

Rodin and Ickovics (1990), noting the "large gap in our knowledge base concerning women's health," proposed an explicit research agenda with special attention to the health of aging women. Although women live longer than men, they spend their later years with more disabling conditions (in many cases, three or more chronic illnesses) (Verbrugge, 1985a). Furthermore, older women experience more limitations in activities of daily living (e.g., bathing, household chores) than do men in their age group (U.S. Bureau of the Census, 1990). Virtually all studies show that women, regardless of age, report more health problems than do men. Women are the consumers most dependent on medical services, reporting more acute conditions and having higher prevalence of chronic diseases (Lempert, 1986). Compared to men,

women of all ages report more physician contact via both office visits and telephone calls (Adams & Benson, 1990). Women restrict their activities for health problems about 25 percent more days each year than men do, and they spend about 40 percent more days in bed per year on the average (Verbrugge, 1985b).

Statistics specific to middle adulthood are consistent with those cited for women in general. Mid-life women visit physicians, on the average, 5.9 times per year, compared to 4.7 visits for men (Givens, 1979). Restriction due to illness is 46 percent greater for mid-life women than for mid-life men; incidence of acute conditions is 24 percent greater for women (Givens, 1979). Women's well-publicized mortality advantage over men has begun to decline in recent years, particularly for persons aged 45 and older (Rodin & Ickovics, 1990). Despite the obvious need for research, female subjects have been woefully underrepresented in studies funded by the National Institute of Health, as documented recently by the U.S. General Accounting Office (1990). Overall, the NIH spends only 13 percent of its $7.7 billion budget on women's health issues (Purvis, 1990). Results of studies on men should not be extrapolated to women.

Research specific to middle adulthood is particularly scanty. DeLorey (1984) noted that "Until recently, little information has been available concerning the health or health care of mid-life women" (p. 277). DeLorey found that medical literature focused on menopause as the major health issue for mid-life women; among 30 textbooks, few even mentioned other aspects of health (DeLorey, 1981). Although

the discomforts of menopause should not be minimized, recent research suggests that menopause is not the negative, distressing experience portrayed in medical literature (cf. MacPherson, 1981). In a longitudinal study of 541 initially premenopausal women, natural menopause did not adversely affect anxiety, anger, depression, perceived stress, or other psychological characteristics, and the researchers concluded that menopause was a benign event (Matthews et al., 1990). Further, menopause is not the predominant health issue of this period of a woman's life (McKinlay, McKinlay, & Brambilla, 1987).

In an extensive review of nursing research on women's health from 1980-1985, Woods (1988) found that only 15 percent of papers dealt with women in the middle years. Existing studies of mid-life women's health and/or health-promoting behaviors (cf. Engel, 1987; Duffy, 1988) have failed to explain much of the variance, and utilization of homogeneous samples of mid-life women limited generalizability. A model developed by the author accounted for 59 percent of the variance in perceived health status of a more diverse sample of mid-life women (Thomas, 1990); however, sample size (N=87) was small and several variables that could be salient to health were not included.

The significance of this study lies in its potential for improving prediction of health status for mid-life women. By the year 2000, the number of mid-life women between the ages of 35 and 64 will have increased to slightly more than 50 million, approximately 42 percent of the entire female population (U.S. Bureau of the Census,

1978). Women in middle adulthood have half of their adult years remaining; with good health, these women have abundant potential for personal achievement and continued contributions to the health and welfare of their spouses, children, extended kin networks, friends, communities, and social institutions.

Conceptual Framework

For the present study, health is conceptualized within a holistic, positive philosophical perspective that differs from the disease-oriented medical model. A consumer movement in the 1970's and 1980's emphasizing "high level wellness" (Ardell, 1979) has paralleled recent attitudinal changes within the medical and nursing professions. Between 1979, when the U.S. Public Health Service issued its first compendium of national strategies for health (Healthy People), and 1990, when a newer version was offered (Healthy People 2000), an important shift in emphasis occurred. The more recent document emphasizes health as a positive concept and consumer initiatives for self-care (Kulbok & Baldwin, 1992). Although some laypersons and health care providers continue to view health narrowly as absence of disease or ability to perform social roles, new models have been introduced (e.g., Newman's [1986] conceptualization of health as expanding consciousness; Seeman's [1989] systems model of positive health) and there is greater acceptance of broader concepts of health emphasizing vitality and actualization. Smith (1983) terms the broadest conceptualization "eudaimonistic;" in the eudaimonistic model, health is exuberant well-being. Investigators have begun to realize that we cannot study health

by focusing on disease; health is most appropriately examined in relatively healthy people. Further, we cannot operationalize health with tools that list physical symptoms such as back pain and stomach discomfort.

Health involves a dynamic interplay of physical, psychological, and social factors, not all of which can be examined in the present study, because Baruch and Barnett did not assess physical health indicators (e.g., mobility, energy, physiologic symptoms) and self-care behaviors (e.g. getting proper rest). Therefore, the study focus is psychosocial, and the resultant models of health should not be construed as complete models. However, the significance of partial models should not be underestimated. Most Americans are aware that exercise, adequate sleep, proper weight, moderate drinking, and abstinence from smoking are correlated with better health (cf. Wiley & Camacho, 1980), but adherence to the recommended level of these activities is not proportionate to knowledge of their importance. There is a great need for investigation of psychosocial variables that may influence propensity to engage in health-promoting behaviors and/or ability to cope successfully with health problems.

In Seeman's (1989) systems model of health, the cognitive system is termed dominant, "a domain that is so powerful in its impact on health that it would be difficult to overstate its centrality" (p. 1105). The two main elements of the cognitive system, according to Seeman, are personal mastery/control, and affirmative self-definition; both of these are included in the framework guiding the present study. We

proceed now to examine the various concepts hypothesized to be salient to the health of mid-life women.

Locus of Control/Mastery

Locus of control is a construct from Rotter's (1954) social learning theory. According to Rotter, individuals develop beliefs about their ability to control desired outcomes or rewards through the reinforcement patterns to which they are exposed. Eventually most people have a stable general expectancy that reinforcements (rewards) are contingent upon their own behavior (internal locus of control) or an expectancy that rewards are received on a purely random basis or dispensed by powerful others (external locus of control). This stable general expectancy has been given a variety of names. For example, Pearlin and Schooler (1978) used the term "mastery" to describe "the extent to which one regards one's life-chances as being under one's own control in contrast to being fatalistically ruled" (p. 5). The personal control construct is also found in attribution theory (Heider, 1958), which explains future behavior according to the perceived causes of past events. Locus of control is subsumed in Kobasa's (1979) multidimensional "hardiness" construct and Antonovksy's (1984) "sense of coherence," both of which have been associated with favorable health outcomes in a number of studies during the past decade.

What does locus of control have to do with health status? Logically, individuals who have an internal locus of control are more likely to engage in positive health behaviors; they believe that the reinforcement (good health) is directly related

to their own actions, not controlled by powerful others (doctors) or by fate. Researchers using the LOC construct have examined weight reduction, smoking cessation, health information-seeking, and preventive health practices such as exercise (Strickland, 1989). In a year-long prospective study, Seeman and Seeman (1983) found that subjects who scored high on a locus of control measure at pretest had better self-rated health and fewer sick days than individuals with a lower sense of personal control. Thomas's (1983) investigation of predictors of current health for mid-life men and women revealed that internal locus of control was the strongest predictor ($\beta = .22$, $p = .0001$). In a later study (1990) of middle-aged females participating in the third phase of Thomas's longitudinal study, internal locus of control ($\beta = .19$, $p = .05$) was one of 7 variables in a regression model predicting 59 percent of the variance in health status. Verbrugge (1990) found low mastery to be one of the most important risk factors for poor health status in a Detroit study of white adults; women were at greater risk than were men. As Strickland (1988) has noted, women tend to have less control over their lives than men do.

Psychological Well-being

In a meta-analysis based on studies of U.S. adults, health and subjective well-being were found to be positively and significantly related (Okun, Stock, Haring, & Witter, 1984), with an average correlation of .32. Using different methods of research review, George and Landerman (1984) and Zautra and Hempel (1984) reached the same conclusion. The former research team conducted a secondary

analysis of seven large data sets, finding a median correlation between health and well-being of .24, while the latter research team used the traditional narrative literature review approach. Despite the impressive convergence of evidence, the mechanism linking the two constructs remains unclear. Zautra and Hempel (1984) proposed that reduced well-being could play a causal role in physical health problems, either directly or indirectly through life-style changes.

What is meant by the term "well-being"? In their review of 81 studies, Zautra and Hempel (1984) reported lack of consensus on definition of this multidimensional construct. Consequently, well-being has been operationalized quite differently by various researchers (e.g., life satisfaction, happiness). In recent literature, well-being is construed as more than happiness or "feeling good." Virtually all of the conceptualizations of well-being include the affirmative self-definition emphasized by Seeman, although terms for this component vary (e.g. Ryff [1989] uses the term self-acceptance, while Rosenberg [1965] speaks of self-esteem.) This component of well-being may be particularly salient to health. It stands to reason that persons who feel better about themselves would be more inclined to enact self-care behaviors that promote good health. Moneyham (1992), in a study of professional women, found that self-esteem was an important resistance resource that decreased vulnerability to stress and stress-related illness, through its influence on threat appraisal and coping.

According to Ryff (1989) a sense of meaning and purpose in life is another important component of psychological well-being. Purpose in life includes having

goals and a sense of directedness. It logically follows that persons having clear goals may devote more effort to health maintenance, as most goals cannot be achieved without good health. Ryff (1989) also emphasizes personal growth (realizing one's unique potential) in her discussion of the dimensions of well-being. In Ryff's view, a high scorer on a measure of this dimension would be developing, expanding, and becoming more effective, in contrast to a low scorer characterized by personal stagnation or boredom. This aspect of well-being appears particularly crucial for persons in middle adulthood, a period characterized by existential questioning (Gould, 1972), changes in life-style or role responsibilities (Levinson, 1978) and significant contributions to society (Erikson, 1968).

Quality of Experience in Roles

Roles are contextually situated patterns of behaviors and attitudes (Turner, 1990); they evolve from societal expectations and are enacted in daily interactions with others in a variety of arenas. Rodin and Ickovics (1990) proposed that changes in social structure and roles in the past few decades have contributed to the decline in women's mortality advantage respective to men. A burgeoning literature has examined the effects of contemporary women's involvement in multiple roles. Not surprisingly, it is the paid worker role, superimposed on traditional roles of wife and mother, that has attracted greatest attention from both researchers and popular media. In the last three decades, the number of employed women in the U.S. has increased from 21 million to more than 50 million (Taeuber, 1991). In 1988 65 percent of

women were in the labor force (U.S. Department of Labor, 1990). In early studies it had been hypothesized that addition of work to family roles would produce role overload and psychological distress, possibly compromising women's health. Research has not supported this proposition, however. Barnett and Baruch (1985) examined the relationship of (a) number of roles; (b) occupancy of particular roles of paid worker, wife, and mother; and (c) quality of experience in roles with mid-life women's psychological distress (see Instruments section for information regarding operationalization of role quality). The researchers found that the role of parent rather than paid worker was the major source of stress for women in the middle years, and that the quality of experience in social roles was more salient than the number of roles a woman occupied. In a subsequent analysis using the same data set, Baruch and Barnett (1986) examined the quality of mid-life women's experience in the roles of paid worker, wife, and mother in relation to psychological well-being (the latter variable operationalized by indices of self-esteem, depression, and pleasure). The three role quality variables were significant predictors of well-being, with the exception that quality of experience in the parental role did not predict pleasure. Although health was assessed by the researchers, neither the 1985 nor the 1986 paper reported correlations between role quality and general health status.

Helson, Elliott, and Leigh (1990), building on Baruch and Barnett's work, tested whether number and quality of roles were associated with health in 100 privileged mid-life women. Number of roles was not related to physical health. The

authors did not include the correlation of role quality and physical health in their report. A research team headed by Barnett recently examined quality of experience in roles in relation to physical symptoms, using a sample of women employed in helping professions (practical nursing and social work). Rewarding aspects of the work role, such as helping others, were associated with lower levels of physical symptoms, even when the women felt overloaded by having too much to do. Conversely, under conditions of low reward from helping others and high overload, reports of physical symptoms were high (Barnett, Davidson, & Marshall, 1991).

Role dissatisfaction (respondents' feelings about their main role: job or housework) proved to be an important risk factor for poor health status in Verbrugge's (1990) Detroit study; risk was greater for women than for men. Unfortunately, it is not possible to ascertain which role the subjects were evaluating. Women were less likely than men to be employed, suggesting that for many women the role they evaluated was that of housewife. Women occupying the role of housewife were more likely to experience "role disenchantment" and depression than were employed women in a large longitudinal study by Pearlin, Lieberman, Menaghan, and Mullan (1981).

Loss of roles has been a focus of some prior research. During the 1960's and 1970's, the "empty nest syndrome" attracted considerable attention; relinquishing the parental role was assumed to be traumatic for mid-life women. However, newer studies (cf. Black & Hill, 1984) have negated this assumption. Mid-life women

frequently report that departure of children from the home creates opportunities for self-development through pursuit of further education, career moves, and/or community activities. For contemporary women, the "refilled-nest syndrome," in which adult children return home due to economic or personal crises, has become a greater stressor (Witkin, 1991).

Some studies (cf., Waldron & Jacobs, 1989) have shown that the more roles a woman occupies, the healthier she is likely to be. It has been suggested that married women who juggle paid work and family responsibilities may use each role as a resource or buffer for coping with the stresses of the other (Stewart & Salt, 1981). In a sample of professional women, Amatea and Fong (1991) found that those occupying a greater number of roles reported lower levels of strain symptoms. Similarly, women enacting the 3-role combination of wife-mother-worker scored lowest on general anger proneness, when compared to women enacting other role combinations, in a new study by Thomas and Donnellan (1993).

Stress

Research on stress has at various times focused on (a) the body's physiologic adaptation to environmental stimuli (cf. Selye, 1956); (b) major life events such as bereavement, divorce, financial setbacks (cf. Holmes & Rahe, 1967); (c) minor daily hassles which, in themselves, are not devastating but cumulatively tax one's frustration tolerance (cf. Kanner, Coyne, Schaefer, & Lazarus, 1981); and (d) the interaction of person and environment (cf. Lazarus, 1991). The latter transactional

view, which dominates contemporary literature, emphasizes the individual's subjective appraisal that environmental circumstances or demands are too much for him/her to handle; thus, stress is presently considered a perceptual construct rather than a particular external event or accumulation of events. An event appraised as threatening by one woman could be construed as challenging to another.

Although there is a voluminous literature on stress and its health consequences, including experimental, clinical, and epidemiological research (Steptoe, 1991) women have been neglected until recently (Barnett, Biener, & Baruch, 1987). There is evidence that a woman's level of stress is profoundly affected by misfortunes occurring to others in her social network (Kessler & McLeod, 1984) a phenomenon that has been termed "vicarious stress." In their study of over 500 women, Thomas and Donnellan (1993) found that vicarious stresses (e.g., son's divorce, grandson's illness, friend in jail, nephew's car accident) comprised the largest category of responses to the question: "What is your greatest stress right now?" The added burden of vicarious stress may account for the consistency of research reports showing that women are more stressed than are men (cf. Turner & Avison, 1989; Verbrugge, 1990), a gender difference evident as early as adolescence (Thomas, Shoffner, & Groër, 1988; Groër, Thomas, & Shoffner, 1992). In a study of stress factors of wives in dual-career marriages, husbands greatly underestimated the amount of stress their wives were experiencing; primary stresses were family-related rather than job-related (White, Mascalo, Thomas, & Shoun, 1986).

Mid-life women appear to be particularly vulnerable to stress due to the simultaneous demands of caring for children as well as aging parents; the term "sandwich generation" has been applied to middle-aged Americans caught between the younger and older generations' dependency on them (Zal, 1992). Bernardy (1987) noted that "of the eight million Americans who provide some level of care to an elderly relative or friend, most are daughters; their average age is 46" (p. 4). Further, women are dealing with their own intrapsychic issues during this life stage. In Thomas's (1990) study of mid-life women, the majority (66%) reported severe daily stress; primary concerns of highly stressed women were "health of a family member" (a vicarious stressor) and "troubling thoughts about one's future" (an intrapsychic stressor). High family health care responsibility was an important risk factor for poor health status in the Detroit study by Verbrugge (1990); the risk was greater for females than for males. When middle-aged Cleveland women (ages 35-65) were asked to rank their top five health concerns from a list of 20, stress was the number one response (Kennedy & Comko, 1991).

Stress is thought to affect health through two physiological mechanisms: (a) overstimulation (increased heart rate, blood pressure, catecholamine production) and (b) suppression of immune system responsiveness. In an interesting study of men and women managers at home and work, men's secretion of norepinephrine by the adrenal medulla (a physiological indicator of stress) dropped sharply on arrival at home. However, for the women managers, norepinephrine secretion continued to rise

in the evening as they dealt with the demands of their families and their "second job" of housekeeping tasks (Frankenhaeuser, Lundberg, & Fredrikson, 1989). Perhaps the reason most studies find women more stressed than men is the inability of women to truly escape from the multiple demands on their time and energy. As Mary Catherine Bateson (1990) pointed out, "relaxing at home" is an oxymoron for most women.

Social Network Ties

Connectedness to others is a central element in women's health and well-being throughout the life span. Since Cassel's (1974) contention that disruptions in social networks have adverse health consequences, hundreds of studies have been conducted to explore various mechanisms and relationships. There is considerable empirical evidence that solid, stable, connections to a social group apparently produce improved resistance to disease (Ornstein & Sobel, 1987). Social network researchers have been aggregated in two "camps," one contending that social networks exert a direct effect on reducing physical symptoms and the other asserting that social ties also act to reduce symptoms by "buffering" the effects of stress (Cohen, Teresi, & Holmes, 1985). Caplan (1981) asserts that achieving mastery over stress is more likely to occur when individuals receive adequate social support. Benefits of support from one's relatives and friends include concrete material help with problems (e.g., money), provision of information, affirmation of self-worth, and encouragement to maintain hope of a satisfactory outcome. The presence of a supportive person during

exposure to psychological stressors in a laboratory situation diminished cardiovascular reactivity in a sample of women studied by Kamarck, Manuck, and Jennings (1989).

A support network could also provide encouragement regarding health-promoting behaviors (House, 1981) or compliance with treatment regimens prescribed for medical conditions (Levy, 1983). Regardless of the precise mechanism, social support indices are usually found to be predictive of health/disease dependent variables. Due to the large volume of literature, only a sampling of studies is cited here. Blake, Roberts, Mackey, and Hosokawa (1980) found that clients with low social support had a higher utilization rate of professional services in a primary care clinic. Connell and D'Augelli (1990) examined the direct effects of social support on physical health using LISREL; significant paths for their model indicated that individuals who perceive themselves as affiliative and nurturant have larger networks, receive more support from others, and rate their physical health more positively.

A frequently cited longitudinal study by Berkman and Syme (1979) revealed that subjects with few ties to other people had higher mortality rates than those with greater social connectedness. However, in replications of Berkman and Syme's work, gender differences were noted; the relationship between social ties and mortality rates was statistically significant only for men (Minkler, 1986). In the Tecumseh Community Health Study, composite indices of social relationships and activities were inversely associated with mortality, but associations were stronger for males than for females. The researchers concluded that men may benefit more from social

relationships than women (House, Landis, & Umberson, 1988). Shumaker and Hill (1991) pointed out anomalies in three longitudinal studies of social support-mortality linkages with respect to women in certain age groups; in all three instances, women with high levels of support had higher mortality rates. In a recent study of married professional women's stress, social support, and health, no stress-buffering effects were found for social support (Reifman, Biernat, & Lang, 1991). There may not be reciprocity within supportive relationships, and the "cost of caring" for some women in large social networks may exceed the benefits. Both men and women tend to rely on women, moreso than men, for support. In a study of professional couples by Thomas, Albrecht, and White (1984), a sizable percentage of husbands showed little receptivity to their wives' attempts to discuss their work-related problems and achievements. In the corresponding situation, a wife who did not listen attentively to her husband's account of his job strains would undoubtedly be termed "unsupportive." In summary, the relationship between social support and health appears to be more complicated for women. In Thomas's (1990) study of mid-life women, social support was unrelated to health.

Optimism

Scheier and Carver (1985) assert that optimism is a stable personality characteristic with important implications for the manner in which people regulate their actions, particularly actions relevant to their health. The construct of optimism, as used in psychological literature, includes global tendencies to (a) expect the best,

(b) look on the bright side, and (c) anticipate good things in the future (Scheier & Carver, 1985). The construct does not overlap with internal locus of control; expectations of favorable outcomes may be derived from perceptions of being lucky or blessed by God as well as from convictions of personal control. Effects obtained for optimism in a study of adaptation to college life were found to be independent of locus of control (Aspinwall & Taylor, cited in Scheier & Carver, 1992). Several studies have examined the influence of optimism on health variables. Scheier and Carver (1985) conducted a longitudinal study of physical symptom reporting by undergraduate students. The study took place during a stressful period for the students: the last four weeks of the academic semester. Optimism and physical symptoms (such as coughs, muscle soreness, and fatigue) were measured at the outset of the study and again four weeks later. Optimism was negatively correlated with symptom reports at both testings. A prospective relationship between optimism and symptom reporting was demonstrated. Subjects who were highly optimistic initially were subsequently less likely to report being bothered by physical symptoms, even when statistical correction for initial symptom levels was done. Reker and Wong (1983) investigated optimism in relation to physical symptoms and overall physical and mental well-being in older adults. Two years after measurement of optimism, persons assessed at Time 1 as optimists reported fewer symptoms and greater well-being than did those subjects initially categorized as pessimists.

Higher optimism scores during pregnancy have been found to be significantly correlated with lower levels of postpartum depression, even when initial depression was controlled (Carver & Gaines, 1987). Higher levels of optimism have also been associated with likelihood of completing an alcohol treatment program (Strack, Carver, & Blaney, 1987). In the author's previous study optimism was positively correlated ($r = .30$, $p = .0045$) with self-reported current health status of mid-life women (Thomas, 1990). Coronary artery bypass surgical patients were assessed at three points in time in a study by Scheier and Carver (1987) including both preoperative and postoperative testings. A number of significant findings resulted. Individuals initially assessed as optimists were more likely to begin walking around their rooms sooner after bypass surgery than pessimists, had fewer complications, and were judged by members of the cardiac rehabilitation team to have a faster rate of recovery. At 5 year post surgery followup, optimists were more likely to be working full time and their quality of life remained higher than that of pessimists (Scheier, Matthews, Owens, Magovern, & Carver, cited in Scheier & Carver, 1992).

What accounts for these research findings on linkages between optimism and health? Several mechanisms have been proposed, although none has adequate empirical support. Among the physiological mechanisms are immunological functioning (presumed to be superior in optimists) and cardiovascular reactivity to stress (presumed to be greater in pessimists). Among the behavioral mechanisms that may explain optimism's link to health are coping strategies and health habits.

Researchers have found that optimists and pessimists differ in the kinds of coping techniques they used to manage stress; optimists focus on solving the problem and finding positive aspects of the situation, while pessimists deny, distance, and disengage (Scheier, Weintraub, & Carver, 1986). Optimistic persons are believed to be more persistent and/or to work harder at attaining their goals. Thus, if health goals (e.g., fitness, weight loss) are valued, optimists may enact the behaviors required to achieve them. When health problems are encountered, optimists may respond more decisively and promptly than do pessimists.

Demographic Variables

A comprehensive examination of factors that impact health must include demographic characteristics such as level of education, financial resources, and employment status. In a recent paper Matthews (1989) pointed out the neglect of demographic variables by health researchers, which can be attributed to a mindset that characteristics such as education are not readily modifiable. Thus, there is a lack of knowledge about the role of these variables in disease processes. Yet there are important findings demonstrating the need for closer scrutiny. For example, among survivors of heart attack, subsequent mortality is associated with low education (Ruberman, Weinblatt, Goldberg, & Chaudhary, 1984). Individuals with better education are more likely to read and comprehend written information about health-promoting activities and may be less intimidated about articulating their health concerns to care providers. Education may also covary with psychological processes

yet to be identified (Matthews, 1989). Regardless of the mechanisms involved, when education is included as a predictor of health outcomes, strong positive relationships are usually found (cf. Franks & Boisseau, 1980). In Thomas's (1990) study of mid-life women, the association of education and health was consistent with previous literature ($r = .33$, $p = .002$). However, there is some evidence that less educated persons are not automatically disadvantaged with regard to health status. When Wiley and Camacho (1980) divided their sample into three educational levels, individuals with high scores on a health habits index had good health outcomes, regardless of educational level.

The employment-health link has been the subject of much speculation but little research involving large samples of women followed over time. Thus, the five-year study by McKinlay et al. (1990) of over 2,000 Massachusetts mid-life women (initially aged 45 to 55) was a significant contribution. In this study, employment had a positive impact on perceived health; working women had fewer restricted activity days and fewer new chronic conditions. The researchers concluded that work may play a protective role for women, actually alleviating the stress of nurturing roles and preventing morbidity (McKinlay, Triant, McKinlay, Brambilla, & Ferdock, 1990). Several cross-sectional studies have provided additional support for the positive relationship between work and health. Women who were working in middle adulthood had better physical health than homemakers in secondary analyses by Coleman and Antonucci (1983) of data from a national sample first studied by Veroff,

Douvan, and Kulka (1981). Employment outside the home was positively correlated with health in Thomas's (1990) study (r = .37, p = .0005), while lower participation in paid employment was one of five factors placing women at greater risk of health problems in Verbrugge's (1990) study.

Hornstein (1986) suggested that employment may have special meanings to mid-life women, serving to minimize the stress of the mid-life transition (i.e., a stabilizing element). In a recent book on the meaning of work in women's lives (Grossman & Chester, 1990), emphasis was placed on the contributions of employment to self-esteem, self-development, and sense of control of the world outside the household. These benefits may compensate, in part, for the relatively low level of control women have over the behavior of spouses, children, and others in the home. However, the prestige of the occupation is an important factor to be considered when evaluating the influence of women's work on their health. Women in highly prestigious fields such as medicine and law have much greater autonomy and control than women in lower prestige fields such as clerical and service work. Not surprisingly, Baruch (1984) found that occupational prestige was strongly related to a sense of mastery for mid-life women.

A final demographic factor is financial status. Consistent with common-sense prediction, higher income has been correlated with good health in numerous studies. Both physical and mental illnesses tend to be more prevalent among those of lower socioeconomic status. Individuals with lower incomes are more concerned about the

possibility of contracting debilitating diseases and view themselves as more susceptible to illness in general (Johnston & Ware, 1976). Additionally, inadequate financial resources prevent them from obtaining required nutrients, preventive measures such as influenza immunizations, and proper medical care when ill. Mid-life women with higher incomes reported fewer physical health problems in the study by Coleman and Antonucci (1983).

Method

The researcher was privileged to be selected for participation in the Mid-Life Research Program of the Henry A. Murray Research Center at Radcliffe College, a part of the Research Network on Successful Mid-Life Development funded by the John D. and Catherine T. MacArthur Foundation. Secondary analysis of the Baruch and Barnett data set, which is housed at the Murray Center archive, was subsequently undertaken. Although health had been assessed at the time of data collection, the original study was conducted for a different purpose, and the health data had not been used in any of Baruch and Barnett's published reports.

Sample

Because role patterns were a primary concern in the original study, the sample was selected to ensure inclusion of (a) groups of theoretical relevance and (b) relatively rare groups (such as women in high prestige occupations) rather than to comprise a representative sample of mid-life women. To obtain the sample, Baruch and Barnett had first scrutinized census data in the Boston area to locate a community

with adequate numbers of employed women and a wide range of occupational prestige levels; Brookline met their criteria. Brookline women in the 35 to 55 age group were contacted in order of random numbers assigned to the community's list of registered voters; 6,000 women were screened by telephone. The final sample of 238 women were interviewed in their homes in 1978-1979; response rate of women who met inclusion criteria was reported by the researchers as 76 percent (Baruch & Barnett, 1986).

The sample included women from four family statuses: never-married (N=50), married without children (N=54), married with children (N=88), and divorced with children (N=46). These family statuses were crossed by employment status: half the married women were employed, as were all of the never-married or divorced women. The employed women were equally distributed by occupational prestige into high, medium, and low groupings according to Siegel's (1971) system of categorization. Unemployed women were classified according to the prestige of their husbands' occupations. All subjects were white; mean age was 43.6 years (S.D. = 6.5); mean number of years of marriage was 18 (S.D. = 8.4); and mean number of children was 2.6 (S.D. = 1.2). Of the 134 women who were mothers, 23 percent had younger children (7 years or less), while 66 percent had at least one child at home but none under age 8, and 11 percent had an "empty nest." The majority (60%) of the women had baccalaureate or higher degrees; 76 percent were employed outside the home.

As noted by the researchers (Baruch, Barnett, & Rivers) in the preface to their 1983 book, the "average" woman in the sample had been born in 1935 to parents living through the depression years; she had experienced the World War II years as a child and moved into adolescence in the post-war years. Despite a cultural climate that had promulgated the homemaker role as the ideal feminine choice, by 1979-80 when the data were collected, she was living in a world radically altered by the women's movement. Thus, the unique aspects of this cohort of women must be kept in mind by researchers conducting secondary analyses over a decade later.

Instruments

During a pilot study the researchers had interviewed 10-12 women from each of the groups about rewarding and distressing aspects of their roles; from these data, scales were developed. The final questionnaire also included some measures developed by other investigators (see Baruch, Barnett, & Rivers, 1983 for a complete discussion of the test battery; a copy is found in the appendix of their book). Only those scales used in the present study will be discussed here.

According to psychometric theory, scores based on scales with multiple items are more reliable than scores for single-item scales (cf. Cronbach, 1951). Therefore, in several instances the researcher created new scales to measure the constructs of the present study rather than relying on single-item measures used in the original study. In some cases, revisions were deemed necessary to reflect contemporary theorizing

(e.g., psychological well-being). Cronbach's alpha was used to ascertain internal consistency reliability of the new scales.

Health Index

Three items were aggregated into a new health index:

- How would you describe your present health? (excellent, good, fair, or poor)
- How often does your health get in the way of things you want to do? (5 point response format, anchored by "never" and "all the time")
- To what extent, if any, are health worries a concern? (4 point response format, anchored by "not at all" and "extremely")

Cronbach's alpha for the scale was .75, and the average inter-item correlation was .50. Good variability was achieved, with no problematic skewness, although there were more women in the sample scoring higher, indicating good health. Presumption of validity for the scale relies on previous research in which similar subjective ratings of health have been found to correspond well with objective assessments by health care providers (cf. Martini & McDowell, 1976; Hunt, McKenna, McEwen, Backett, Williams, & Papp, 1980). In some cases self-assessment has even proved to be superior. Mossey and Shapiro (1982) tracked a sample of elderly individuals for eight years following subjective and physician ratings of their health; the subjective ratings were more highly correlated with mortality than were the physician ratings.

Locus of Control/Mastery

Baruch and Barnett had used Pearlin and Schooler's (1978) seven mastery items to assess women's sense of personal control over events and problems in their lives. The mastery scale was part of a battery used in a large study in Chicago by Pearlin and Schooler (1978); factor analysis was used in validation of the test battery. Internal consistency of the scale was reported at .75 by the test developers. No alterations of this measure were attempted for the present study.

Psychological Well-Being

In keeping with current thinking about the construct of well-being (cf. Ryff, 1989), operationalization for the present study departed from Baruch and Barnett's (1986) measure in some respects. Although the self-esteem component (measured by Rosenberg's 10-item [1965] scale) was retained, pleasure and depression were not. Instead, the researcher gleaned from the data set items that more accurately reflected current conceptualizations of well-being. Illustrative items include: "having pride in your accomplishments," "knowing your own strengths and limitations," and "feeling a need to justify your way of life to yourself and others" (the latter item reverse-scored). One item assessed general satisfaction with "life as a whole." The 10-item well-being scale achieved good variability of scores and acceptable internal consistency reliability (Cronbach's alpha = .72), with an average inter-item correlation of .32.

Role Quality Measures

Based on responses of the women interviewed in their pilot study, Baruch and Barnett had constructed scales assessing rewards and concerns (distressing or negative aspects) of each role. For example, a reward in the role of paid worker was salary; a concern was lack of challenge. After mean reward and concern scores were computed, a balance score (reward minus concern) constituted the index of the woman's subjective quality of experience in each role. For the present study the scores for rewards, concerns, and balance were used as derived by Baruch and Barnett. Quality of experience in the roles of wife, mother, paid worker, homemaker, childless wife, never-married woman, and divorcee was examined.

Stress

Consistent with current conceptualizations of stress as a subjective experience, subjects' mean scores on the anxiety and depression items of the Hopkins Symptom Checklist were selected to operationalize the construct. The larger instrument (now known as the SCL-90) is a self-report inventory of psychological symptoms. It has been widely used in clinical and research studies, and there is extensive evidence of its reliability and validity (Derogatis, Lipman, & Covi, 1973; Derogatis, Lipman, Rickles, Uhlenruth, & Covi, 1974). Coefficient alpha was .89 for anxiety and .88 for depression in a recent study of women by Barnett, Marshall, and Singer (1992). Precedent was found for combining the anxiety and depression items into a single distress score in the work of Folkman, Lazarus, Gruen, and DeLongis (1986) and

Barnett, Marshall, and Singer (1992). The two scales were found to be highly correlated (r = .80) and there was high internal consistency reliability for the combined scale (Cronbach's alpha = .90) in the sample of Barnett et al. (1992).

Social Network Ties

Four items were aggregated into a new social ties index. Three items assessed the extent to which good close friends, social activities and groups, and volunteer or service activities were a rewarding part of the woman's lives, and the final item asked to what extent not enough social life was a concern (reverse-scored). The full range of possible scores was observed on the scale, and there was no problematic skewness. Although Cronbach's alpha was less than desirable at .52, no other items were located in the data set that elevated the coefficient.

Optimism

This construct was assessed by the single question "When you think about the future, how do you usually feel: extremely hopeful, somewhat hopeful, or not at all hopeful?" This item directly captures the construct of optimism as defined by Scheier and Carver: "expectations for the future" (1992, p. 221). A search of the data set revealed no other suitable items to combine into a scale.

Demographic Variables

Demographic variables (education, employment, occupational prestige) were used in their original form or recoded as dummy variables, with the exception of financial status. Because income figures had become obsolete, a 2-item financial

resources index was created. Questions were: "How threatened do you feel financially from inflation?" and "To what extent is not having enough money a concern?" The full range of scores was observed, with no problematic skewness and an inter-item correlation of .59.

Analysis

Various analytic strategies were considered. Because path analysis does not accommodate reciprocal relationships (Billings & Wroten, 1978), it was inappropriate for this study. One-way causal paths cannot be specified for linkages between variables such as stress and health. Although LISREL accommodates reciprocal relationships, sample size was not adequate for this procedure. To examine relationships of psychosocial variables with perceived physical health, correlational and regression analyses were used. One of the strengths of the Baruch and Barnett data set is its purposeful inclusion of women pursuing different life paths; to preserve the uniqueness of the different combinations of role responsibilities, separate regressions were done for each of the four major subgroups of the sample. To examine differences between various subgroups, *t* tests and ANCOVA were performed.

Results

Relationships of Psychosocial Variables with Health

In bivariate analyses (see Table 1), stress was the strongest correlate of health (inversely related), with locus of control and optimism next in order of magnitude of

the r values (positively related). A modest positive correlation was also found between psychological well-being and health. The role quality variables most salient to health pertained to the women's experiences in their marriages and in parenting children; quality of experience in the work role, although statistically significant, was a weak predictor. Likewise, social network ties and demographic variables were only weakly related to health. Although quality of experience in the single role was significantly related to health for the 50 women in this status, the remaining role quality variables (i.e., divorcee, homemaker, childless wife) were unrelated to the health of women enacting those roles.

Because age was inversely related to health, separate correlational analyses (see Tables 2, 3) were run for women in the 35-45 and 45-55 age groups. The preeminence of stress was evident in both groups, and there was little difference in the magnitude of r values for locus of control and well-being. Optimism was slightly more important in the older group. The primary difference between age groups was in importance of role quality variables. In the younger age group, quality of experience in the role of mother was almost as important to health ($r = .40$, $p = .0002$) as stress ($r = -.41$, $p = .0001$), but this variable was not significantly related to health for women in the older group. For the older group, quality of experience in the work role and occupational prestige were salient to health (r's = .23 and .31, respectively); neither of these variables was significantly related to health for younger women. Regardless of age, marriage quality was significant (r's = .31 for ages 35-

45 and .27 for ages 45-55), and quality of the homemaker role was nonsignificant. Quality of experience as a never-married woman was important to health status in the younger group (r = .40, p = .02, for n of 36) but not for older never- married women (r = .16, p = .59, for n of 13). Quality of experience as a divorcee was not significant for the 34 women in the younger age group but highly salient (r = .69) for the 11 divorced women in the older age group. Similarly, quality of experience as a childless wife was significant only for those in the older age group (r=.42, p=.03, n=28). Caution is suggested in interpreting the latter correlational findings due to the small numbers of subjects.

Overall, the age analyses are indicative of shifting priorities among women's roles during middle adulthood; perhaps researchers should pay closer attention to the differences between women in the first and second decades of the period. Specifically, the parental role apparently recedes in importance to health for older women, while the work role assumes somewhat greater prominence. Although this finding is consistent with developmental theories, it has not been previously reported in the literature.

The next step of the data analysis involved multiple regression procedures for subjects in each of the four family statuses: never-married, married without children, married with children, and divorced with children. The backward elimination type of stagewise variable selection procedure was used because it allows all variables to interact together; variables with the smallest partial F values are dropped in

successive steps until a final model comprised of predictors significant at .10 is derived. Prior to regression procedures, the intercorrelation matrix was examined to ascertain if there was multicollinearity among the psychosocial variables. All correlations were below .65, indicating that the variables were not redundant (Tabachnick & Fidell, 1983). For each regression, physical health was the dependent variable and the psychosocial and demographic variables were predictors.

For the never-married group, the only variable that remained in the model after the backward elimination procedure was quality of experience in the single role; 10 percent of the variance in health was accounted for by this variable. Although all of the women in this group were employed, quality of experience in the work role was not retained in the final model. For married women without children, quality of experience in the wife role was the only predictor of health, accounting for 6 percent of the variance. Three variables predicted health for married women with children: stress (ß=-.43), optimism (ß=.20); and education (ß=.20); 32 percent of the variance in health was accounted for. For divorced women with children, two variables were retained in the final model: quality of experience in the mother role (ß=.36) and locus of control (ß=.34); the model accounted for 21 percent of the variance (all R^2's adjusted). The reader will recall that all divorced women worked outside the home; however, quality of experience in the work role surprisingly did not prove significant to their health.

Because subgroups were somewhat small for the use of regression procedures, subjects were aggregated into larger groups on the basis of a common role, and additional models were developed. The first stage of these procedures involved all women who were mothers, whether married or divorced. Twenty seven percent of the variance in health was accounted for by 5 predictors: stress (ß=-.29), optimism (ß=.17), employment outside the home (ß=.14), occupational prestige (ß=.18), and quality of experience in the maternal role (ß=.14). In the second procedure, all women who were employed, regardless of marital or parental status, were included. Again, health was regressed on the psychosocial and demographic predictors; the resultant model included only stress (ß=-.27) and locus of control (ß=.14); occupational prestige and quality of experience in the work role were not useful predictors. Eleven percent of the variance in health was explained. Finally, a model was developed using all women who were married, regardless of employment status or parental status. In this model the significant predictors of health were stress (ß=-.36), quality of experience in the wife role (ß=.12), employment (ß=.15), and occupational prestige (ß=.14); 22 percent of the variance was explained.

In summary, regression results primarily demonstrated the importance of role quality variables (except for work quality), stress, and locus of control. The strong impact of stress on health has been noted in previous studies of mid-life women, as well as individuals in other life stages. It is puzzling that occupying the work role showed up as beneficial to health in several of the models, but quality of experience

as an employee did not. Perhaps rewards of work are not as important to women as rewards occurring from their marriage and family roles. This explanation is plausible given the role socialization of this particular cohort of mid-life women during a time when work was not a primary role for women.

Comparisons of Most Healthy and Least Healthy Mid-Life Women

In what ways are the most healthy and least healthy mid-life women different? Using subjects who scored in the upper and lower 25 percent of the sample on the Health Index, comparisons were made on demographic variables (see Table 4). Fewer of the women in the healthiest group (55.5%) were married, as compared to 66.2 percent in the least healthy group. A greater percentage of the healthiest group fell into the high prestige occupational category, while the percentage of homemakers married to men in medium or low prestige occupations was greater in the least healthy group. Another notable difference pertained to educational level, the healthier group having a higher percentage of women with baccalaureate or advanced degrees.

Marriages were of longer duration, on the average, in the unhealthiest group (mean=19.2 years, S.D.=8.5), than in the healthiest group (mean=16.9 years, S.D.=7.8), and there was a slight age difference (mean age 44.9 years, S.D. 6.8 for unhealthiest; 43.1 years, S.D. 6.3 for healthiest). The two groups also differed in mean scores on financial resources (mean=4.4, S.D. 1.5 in the unhealthiest group, mean=4.9, S.D. 1.4 in the healthiest). Number of children averaged two for both groups.

In the next set of procedures demographic variables were controlled, so that the psychosocial variables could be examined without their influence. Using tertiles, the sample was categorized by Health Index scores as "healthiest," "moderately healthy" and "least healthy." ANCOVA (with financial resources, education and employment as covariates) was used to compare the three groups on each of the psychosocial variables. Healthiest women (upper tertile) scored higher on locus of control than the other two groups ($F=6.34$, $p=.0001$), while the moderately healthy and least healthy did not differ from each other. Findings with regard to well-being were similar, in that healthiest women displayed greater psychological well-being than the other groups ($F=4.43$, $p=.0007$) but the two lower-scoring groups did not differ from each other. On optimism ($F=7.80$, $p=.0001$) this pattern was repeated, but on stress all three groups differed significantly from each other ($F=10.75$, $p=.0001$). Stress means were incrementally ordered, such that the healthiest women had lowest stress, the moderately healthy somewhat greater stress and the least healthy the highest stress.

Groups also differed on quality of experience in the wife role, with healthiest women scoring higher but no difference between the other two groups ($F=5.45$, $p=.0001$). On quality of experience in the role of mother (with age controlled), the two upper tertiles had higher scores (not differing from each other) while the lowest tertile had lowest scores, differing from both of the other groups ($F=3.95$, $p=.0012$).

Groups did not differ on quality of experience in the work role or in social network ties.

Given the converging evidence that mid-life women's roles appear to be of considerable salience to their physical health, the next step in the analysis was to examine mean scores on the two elements of role quality more closely (i.e., the rewards and concerns scales for each role). Again, healthiest and least healthy women were compared. Women in better health in middle adulthood had fewer concerns regarding their work ($t = -2.03$, $p = .04$), marital ($t = -4.57$, $p = .0001$), and child-rearing ($t = -3.89$, $p = .0002$) roles, as compared to their counterparts who were less healthy. Further, single women reporting better health had fewer concerns pertaining to their unmarried status ($t = -2.88$, $p = .007$) than did single women who did not rate their health as highly. In most comparisons of the two groups on the rewards of the various life roles, there were no significant differences--with one notable exception. Healthiest women scored higher on rewarding aspects of their marriages ($t = 2.12$, $p = .04$) than the less healthy group. Consistent with other analyses, neither rewards nor concerns of the homemaking role proved to be salient to health; perhaps that role is not one in which this sample of well-educated women was deeply invested.

Item Analyses of Marital Concerns and Child-rearing Concerns Scales

Because the distressing or negative aspects of women's roles were more prominent than the rewarding aspects in differentiating healthy and less healthy

women, the next set of analyses examined responses to individual items in two of the most important concerns scales: the marital and child-rearing concerns scales. Due to the large number of item comparisons, statistical tests were not used to ascertain significance of differences between means; the purpose of these comparisons was exploratory. As the following discussion will show, the range of scores on various items was of interest as well as the means; on all items the possible range was 1-4, with 4 indicating the highest level of concern.

As shown in Table 5, mean scores on marital concerns were higher for the least healthy group on virtually every item. Differences were particularly notable on items 5 (conflicts about children), 10 (problems due to husband's job demands), 11 (husband's emotional problems), and 13 (conflict over who does housework). As indicated in the table footnote, women in the unhealthiest group were more likely to select the 4 response (highest concern). It is of interest that conflict over sharing child care was of greatest concern to women in both groups; groups did not differ appreciably on this item.

Examination of scores on child-rearing concerns (see Table 6) revealed that the least healthy group scored higher on every item than did the women who were healthiest. The discrepancy was greatest for scores on item 3 (worrying about children's well-being); other items with relatively large differences in means were items 6 (worrying about the teenage years), 13 (having too many arguments and conflicts with them), 4 (children fighting), and 7 (not being sure if you're doing the

right thing). For both groups, worry about their children's teenage years was of greatest concern. Groups were similar in level of concern about the financial strain and heavy demands/responsibilities of childrearing. Unlike scores on the marital concerns scale, in both groups some women selected the 4 response (indicating highest level of concern).

Item Analyses of Marital Rewards and Child-rearing Rewards Scales

The final analyses examined mean scores on individual items in the Marital Rewards and Child-rearing Rewards Scales. As shown in Table 7, on 11 out of 15 marital reward items, the healthiest group of women scored higher than their counterparts who were less healthy. The largest discrepancy between groups was observed on item 6, "being able to go to husband with problems;" physical affection and sexual intimacy were also more rewarding to the healthier group, along with husband being a good provider. Fewer differences were seen between the two groups on child-rearing rewards (see Table 8); on 8 of 14 items there was virtually no difference. The healthiest women scored higher on 3 items, including #14 ("the way children change you for the better"), while the unhealthiest women scored higher on several items pertaining to the importance of (a) finding meaning and purpose in the maternal role, (b) being needed by their children, and (c) receiving help from them.

Discussion

Of the psychosocial predictors of health examined in the present study, stress was the strongest factor. The stress-health linkage is well known. However, the

unique contribution of this investigation lies in its discovery of the centrality of quality of experience in major social roles for women's health. Experience in the maternal role was an important predictor, although this role apparently recedes in importance by the second decade of middle adulthood. In a large probability sample of urban women conducted by Lopata and Barnewolt (1984), the role of mother far outweighed any other role in degree of importance; even professional women ranked the mother role first, rather than their occupational role. In the present study, women in the least healthy group appeared to be more unsure of themselves as mothers, worrying more and having more arguments with their children. They also placed more emphasis on being needed by their children, and receiving help from them, than did women in the healthiest group. It is possible that their expectations of both themselves and their children were somewhat unrealistic.

Quality of experience in the wife role was also highly salient to the health of married women in the sample, especially for those who were childless. Healthier women were more likely to report that sharing problems with their husbands was a rewarding aspect of the wife role and appeared to enjoy greater physical intimacy than their less healthy counterparts. Scores of healthier and less healthy women were discrepant on virtually all of the "concerns" items; the latter group reported more conflicts with spouse about housework and children. Concerns about husband's job demands and his emotional problems appeared illustrative of the "vicarious stress" construct discussed earlier; the woman is taking on her husband's issues as her own

worry. By doing so, she may assist her husband to obtain some relief, but her own health may be compromised in the process.

In a recent study of middle-aged women by McKinlay, Triant, McKinlay, Brambilla and Ferdock (1990), stress from spouse or children markedly increased the rates of negative health outcomes. Stress caused by husband was consistently a major factor in multivariate analyses involving five different health variables (e.g., restricted activity days, physical symptoms). The researchers pointed out that their finding is discrepant from a rather large body of literature indicating health benefits for men from presence of a spouse. Further research is needed on the differing effects of spousal relationships on health of men and women. In Barnett, Davidson, and Marshall's (1991) study, women who reported rewarding relationships with partners (or children) had low levels of physical symptoms; this study again underscores the importance of examining the quality of experience in major life roles. Marital quality assumes increased importance in view of the likelihood that contemporary women may spend more than 40 years married (although not necessarily to the same man) (Taeuber, 1991).

Interestingly, there was a significant proportion of never-married women in the healthiest group (top quartile of scores). Further exploration of psychosocial variables and health indicators in never-married women is warranted. Does the single woman simply have more time to attend to self-care activities than her counterpart who has responsibilities for spouse and/or children? Research is lacking in this area. Since

Stein's work (1981) there has been no major study of unmarried adults. Dalton (1992) recently explored the lived experience of never-married women in a small ($n=13$) phenomenological study of urban, southern, well-educated subjects. However, health attitudes and behaviors were not the focus of the study. There is no readily available explanation for the age difference found in the present investigation (i.e., quality of experience in the single role was a significant correlate of health for younger mid-life women [< 45 years] but not for older ones).

Relationships of locus of control and optimism with health in this sample were consistent with previous studies of mid-life subjects by Thomas (1983, 1990) and others. Optimism was not a consistent predictor in all analyses, but somewhat surprisingly was more useful than psychological well-being--especially considering that optimism was measured by a single item. Mid-life women who have a solid sense of hope for the future may have resolved the fabled "mid-life crisis," with positive consequences for their physical health (i.e., renewed vigor and vitality). Conversely, possessing robust health could influence their level of optimism regarding the future. Obviously, causal inferences cannot be drawn from the correlational data. The modest correlation between psychological well-being and health was consistent with previous studies (cf. Okun et al., 1984) and of approximately the same magnitude (the median correlation was .24 in George and Landerman's (1984) secondary analysis of seven large data sets).

Contrary to the preponderance of prior research, social network ties were not related to health in any of the analyses except for a very weak association in the zero-order correlations. The relatively weak performance of the social network variable can perhaps be understood in terms of the costs women incur within their intimate relationships, which mitigate against a wholly beneficial effect of social embeddedness on health. Relationships with husbands and children, as shown clearly by the findings of this study, do provide rewards to women, but also engender highly distressing concerns. Could some of these concerns be avoided or reduced? Do women fail to insist on reciprocity in relationships? Varvaro (1992) found that a major obstacle to women's enactment of health protective behaviors (i.e., exercise) was valuing of others over self. Some women may need assistance in examining values (e.g., self-sacrifice) derived from long-entrenched patriarchy so that they claim their full, healthy personhood.

As in most research on health, the amount of variance accounted for in this study was not large. The behavioral variables already known to have robust associations with health (e.g., exercise) were not included in the Baruch and Barnett data set. Inasmuch as women have more health problems in any time frame--daily, annual, lifetime--than men do (Verbrugge, 1985b), even factors that account for a relatively small portion of the variance in health deserve closer attention by researchers and clinicians. Sidney Jourard (1971) once wrote about "sickening roles" (i.e., stultifying jobs or marriages that were literally making people sick); and more

recently Connors (1985) proposed that the sick role could be a means for women to sabotage their traditional roles. Becoming physically sick is indeed one of the few socially acceptable means of escape, even if temporary, from one's role responsibilities. This study offers some clues regarding certain aspects of key roles that may cause women to become dispirited; inclusion of role quality measures in future health surveys appears to be warranted. Although role occupancy is customarily assessed, role quality usually is not. It may behoove health professionals to include some questions that pertain to quality of experience in roles in routine history-taking. The sociocultural rules that influence women's role-taking and subsequent enactment of roles have been in the process of radical change for the past two decades, mandating research on cohorts of women that may differ in important respects from Baruch and Barnett's sample. In middle adulthood, a period when the cumulative effects of stress and deleterious behaviors are beginning to accrue, women have the opportunity, and sufficient time, to make major attitudinal and life-style modifications that may prolong their lives and enhance the quality of their remaining years. As the life expectancy of American women continues to increase, the quality of the lengthened life span becomes increasingly important.

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